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ABSTRACT

This conceptual framework was constructed by researchers with the Diffusion Program at the Center for Vocational and Technical Education for the purpose of classifying research findings on dimensions of the diffusion process consistent with the objective of the program; the formulation of rational strategies for diffusion of innovations in vocational and technical education. Data collection procedures included analyses of commissioned papers, ERIC documents, and reports of diffusion research. A group of innovative project directors were interviewed, and a committee of consultants reviewed and revised the framework. Target audiences for this conceptual framework are diffusion researchers, change agents at the state or local level who need information on available tactics for innovation diffusion, consumers of innovations, and university faculties preparing education extension or other change agents. The framework presented in this document represents the first of a planned 3-year activity. Appendixes contain the preliminary framework subdimensions, consulting committee group reports, list of innovative project directors interviewed, and an outline of a handbook of diffusion techniques. (Author/MF)

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Research and Development Series No. 89

A Conceptual Framework for the Diffusion of Innovations in Vocational and Technical Education

VT 018 689

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AND TECHNICAL EDUCATION

THE OHIO STATE UNIVERSITY
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The Center's mission is to strengthen the capacity of state educational systems to provide effective occupational education programs consistent with individual needs and manpower requirements by:

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- Programmatic focus on state leadership development, vocational teacher education, curriculum, and vocational choice and adjustment
- Stimulating and strengthening the capacity of other agencies and institutions to create durable solutions to significant problems
- Providing a national information storage, retrieval, and dissemination system for vocational and technical education through the affiliated ERIC Clearinghouse

ERRATA

Item	Location
change footnote number 8 to 9	pg. 15, column 1, para. 2, line 6
omit footnote number 9	pg. 15, column 2, para. 1, line 18
change the reference from figure 5 to figure 4	pg. 15, column 2, para. 1, line 12
change from trailability to trialability	pg. 40 (twice), pg. 41 (four times)
change from trail to trial	pg. 53 in II, under 2
change from Bhloa to Bhola	pg. 57

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Research and Development Series No. 89

A CONCEPTUAL FRAMEWORK FOR THE DIFFUSION OF INNOVATIONS IN VOCATIONAL AND TECHNICAL EDUCATION

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A Final Report
On A Project Conducted Under
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FOREWORD

The finest research and development products will have limited impact on practice in vocational education without a system that delivers a valid product to a consumer. The diffusion of products from one consumer to another is enhanced, as well as limited, by many factors. A knowledge of factors that impinge on the diffusion of research and development products is essential if educators are to formulate effective strategies for installing innovations. The conceptual framework of the innovation diffusion process explained in this report is intended for: (1) diffusion researchers to classify variables from research findings in an effort to identify voids in the knowledge base; (2) change advocates to formulate strategies for the diffusion of innovations; and (3) consumers of innovations to estimate need for adaptation in the innovation or the adopting unit. The conceptual framework presented in this publication is the first phase of a planned three-year component. When completed, this framework should assist both the change advocate and the intended consumer of the innovation to negotiate trial of the product.

We are pleased to acknowledge the assistance of several consultants who critiqued a draft of the conceptual framework and met as a committee to recommend changes in the framework dimensions. The Diffusion Consulting Committee consisted of the following individuals:

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We also value the comments of the ten Ohio directors of innovative projects in secondary and elementary education who were interviewed by component staff members. Their inputs assisted in constructing realistic conceptual framework dimensions.

We wish to extend appreciation to the authors of this publication (William L. Hull, program director; Ralph J. Kester, project associate; and William B. Martin, research associate). Reviewers of this document included: Lois G. Harrington, research technician; John M. Showalter, graduate research associate; and Randall L. Wells, graduate research associate.

Robert E. Taylor
Director
The Center for Vocational and Technical Education

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SUMMARY

Problem

Change advocates are forced to rely largely upon isolated examples and common sense in formulating strategies for innovation adoption. Such advocates lack access to a systematically organized body of knowledge. Current models of innovation diffusion produce helpful insights but do not permit reliable predictions of the impact of an innovation diffusion strategy on a targeted consumer audience.

Objective

The objective of this study was to devise a conceptual framework for the diffusion of innovations in vocational and technical education. For the researcher, the conceptual framework should assist in the classification and anlysis of research findings for the purpose of identifying voids in the existing knowledge. For the change advocate, a fully developed framework would assist in the formulation of innovation diffusion strategies for the purpose of reducing time lag during the installation process. For the decision-maker, the framework would assist in the evaluation of innovations proposed for the purpose of improving educational activities.

Procedures

Several information gathering activities were conducted during the initial stage of development of this conceptual framework. Two scholars were commissioned to write papers on innovation diffusion processes, and a computerized search of the ERIC system was conducted. Activities of other diffusion researchers were monitored, and directors of innovative projects were interviewed for their insights into the diffusion process. A first draft of the conceptual framework was reviewed by a consulting committee of diffusion experts from local education agencies, state departments of education, universities, and private research foundations. Future activities include the application of diffusion research observations to the dimensions of the framework in an attempt to refine and improve the framework.

Conclusions

The following conclusions relate to the initial draft of the conceptual framework reviewed by the Diffusion Consulting Committee. The second draft of the conceptual framework is proposed as Chapter II in this publication; it is as yet untested. The reader should remember that the framework published in this document represents the first year of a planned three-year activity to develop and refine the framework. The development of major dimensions with logical, internally consistent subdimensions received priority consideration during this developmental year:

1. The major dimensions of the conceptual framework received various levels of endorsement from the Diffusion Consulting Committee members.

    1.1. The greatest degrees of confidence were exhibited in the dimensions of the innovation and the targeted consumer. Despite a recommended name change for the consumer category, the sub-dimensions were left intact for the most part.

    1.2. Less confidence was exhibited in the strategy dimension; the committee particularly disliked the labels placed on the configuration of sub-dimensions.

2. New major dimensions were added to the conceptual framework.

    2.1. A dimension of "Change Advocate" was suggested by the committee. The sub-dimensions were recommended to be parallel with the sub-dimensions of the consumer dimension.

    2.2. An "Impact" dimension was added by the CVTE Diffusion Program staff after the committee meeting had been concluded.

3. Research findings selected by the CVTE Diffusion Program staff were classified in the same dimension of the initial framework sixty-eight percent of the time by the Diffusion Consulting Committee members.

A CONCEPTUAL FRAMEWORK FOR THE DIFFUSION OF INNOVATIONS IN VOCATIONAL AND TECHNICAL EDUCATION

CHAPTER I

DEVELOPMENT OF THE FRAMEWORK

The conceptual framework contained in this publication was constructed in response to a need felt by innovation diffusion researchers at The Center for Vocational and Technical Education (CVTE). Their tasks were to assemble existing research findings and to analyze them according to a frame of reference which reflected the goal of the CVTE research and development Diffusion Program. This goal was to optimize the diffusion[1] of tested innovations through rational strategy formulation. Thus the framework dimensions were designed to integrate research findings into a schema for formulating rational strategies of innovation diffusion.

Planned strategies are important because many factors beyond the control of the diffusion specialist tend to impinge on the selection of techniques to make an innovation more acceptable to a potential user. Frequently, the best course of action for a diffusion specialist may be to acknowledge his limitations and to assess the existing state of affairs. This assessment is rational as perceived by the diffusion specialist at this time.[2] Since most educational institutions exist in a state of dynamic equilibrium, a reassessment may be made "tomorrow" or whenever the conditions which affect the diffusion of an innovation have changed significantly. *The logic of this situation would argue for the formulation of precise strategies for innovation diffusion over relatively short time frames.*

It is hazardous to speculate on relationships among concepts or to build constructs in great detail where no knowledge base exists. Therefore, the authors have tended to develop a classification schema as a means of arriving at consensus on definitions and concepts rather than attempting the development of a full-blown theory from the beginning. Hopefully, the application of field study observations and other research findings over time will refine the dimensions in the framework and allow the formulation of statements of relationships among the dimensions.

Another introductory consideration worthy of note is the moral responsibility associated with the construction and use of such a framework. The expressed intent of the framework is as a tool to assist diffusion researchers and operational diffusion specialists in analyzing and synthesizing research findings related to innovation diffusion strategy formulation. Like any tool which aids in the identification of significant variables, the knowledge gained has the potential of being misused. The user of the framework has a moral responsibility to apply this knowledge in an accountable manner.

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[1]Diffusion is defined as the process of disseminating and gaining utilization of an innovation by a specified individual or group. See the more precise definition of diffusion as suggested by Katz and others (1963) in the Definitions of Key Terms section of this report.

[2]Caution should be exercised when the diffusion specialist is located outside of the adopting unit because he may not be aware of all conditions which influence the acceptance of an innovation. In fact, some scholars question the wisdom of any one person's taking the responsibility for installing an innovation in an adopting unit such as a school system. Increasingly, major change in educational systems takes place through the process of negotiation with opportunities for both sides (those favoring and those opposing the innovation) to adapt the innovation while making changes in the adopting unit. Throughout this publication, reference will be made to an adopting unit. This is a unit such as a person or a group of people (e.g., all of the teachers in a school building) which can be observed to accept a given innovation. A person may be labeled as the primary adopting unit for the purposes of this conceptual framework. A secondary adopting unit is defined as an aggregate of primary units. Thus, one can observe the "adoption" of an innovation by school building or by school district. The word "adoption" will be used in this publication to denote acceptance of the innovation by an intended consumer. Ordinarily, the reader should assume the term "adoption" means internalization within the individual and/or institutionalization within the adopting unit representing a group of people. Later in this publication the question of who represents the aggregate will be raised. For example, does the superintendent speak for all of the teachers in his school system? Also, the problem of superficial adoption will be raised in the discussion of the impact of the diffusion strategy on adaptation of the innovation and/or changes in the adopting unit.

Statement of the Problem

There exists in the world today a vast literature on the diffusion of innovations. Anthropologists, rural sociologists, geographers, social psychologists, educational administrators and others have studied the processes associated with innovation adoption. Researchers have tended to use concepts from their own particular disciplines to explain observed behaviors. Rarely have diffusion researchers attempted to bridge disciplines with common terminology or to identify a significant body of facts from which theory can emerge. The works of Rogers (1971) and Havelock (1970) are exceptions to the previous generalization. Rogers (1971) listed 104 generalizations about the diffusion of innovations and cited studies which tend to confirm or reject the generalization. These generalizations extend across cultures and include many different kinds of innovations. Havelock (1969) classified research on knowledge utilization under three models and synthesized a fourth "linker model" to tie together the knowledge flow process from research through utilization. In the appendices of a subsequent guide developed by Havelock (1970) are listed a number of strategies and tactics which may be used by diffusion specialists to plan for the acceptance of an innovation. The tactics are indexed by stages of change, but are not documented with specific research findings for each tactic. Despite the noteworthy works of Rogers and Havelock, these generalizations have not yet been tied together into a comprehensive theory for innovation diffusion in education.

Bernhardt and MacKenzie (1970) analyzed some of the problems associated with models for formulating diffusion strategies for research and ddvelopment products. They concluded that no theory exists for the adoption and diffusion process. Their answer was the development of six models to assist the practitioner in the marketing of research and development products. Rosenau, Hutchins, and Hemphill (n.d.) were asked to develop a strategy for the production, distribution, and utilization of the National Institute for Education (NIE) products. While proposing four knowledge utilization models to NIE, they stressed that little is known about how users become aware of products or why they are motivated to use them. The absence of theory sufficiently powerful to explain behaviors and to predict consequences of actions leaves diffusion specialists with their own devices for making decisions regarding research and development product dissemination and diffusion. In the words of one product diffusor, Kirkpatrick (1972), most judgments which match target information with product delivery costs typically are based on intuition. The crux of the problem is this: in lieu of definitive knowledge about diffusion tactics and conditions of the target user system, *diffusion specialists are forced to rely largely upon isolated examples and common sense in formulating strategies for innovation acceptance.* Current models of innovation diffusion produce helpful insights but do not permit reliable predictions regarding the response of a targeted consumer to a given innovation diffused by a particular strategy.

One of the best approximations of a theory for the diffusion of innovations was proposed by Guba (1968) in an article identifying five classes of assumptions about the nature of the diffusion process. These assumptions concerned the nature of (1) the diffusion techniques, (2) the adopter, (3) the end state in which one wishes to leave the adopter, (4) the agency or mechanism carrying out the diffusion activity, and (5) the substance of the invention. He suggests that the next step is the development of what he calls the "operational determiners" for these classes of assumptions.

Objective

The objective of this study was to devise a conceptual framework[3] for the diffusion of innovations in vocational and technical education. The dimensions of this framework should be consistent with reliable research findings on the diffusion of innovations and account for variation in observed behaviors or conditions. Researchers and others interested in interpreting diffusion findings should be able to classify findings among major dimensions of the framework in a reliable manner.

This framework describes concepts which may be useful in identifying and understanding factors which influence adoption behaviors. Levels of the variables are implicit in the discussions of the dimensions. No attempt is made to state relationships among the dimensions, although the discussion of the major dimensions in Chapter II hints at hypotesized relationships. The intent of this rather conservative approach to the construction of a framework is incremental, systematic progress towards increased understanding of the diffusion process.

Use of the Framework

The primary target audience for this conceptual framework is composed of diffusion researchers who are expected to use it as an analytical device for (1) classifying research findings, (2) identifying voids in the knowledge base

[3]For the purposes of this publication, a conceptual framework is defined as a set of mutually consistent dimensions interrelated by logic, based in fact, and ordered at systematic levels of generality. This framework differs from theory in that no systematic attempt has been made to generalize statements of relationship among the dimensions.

for additional research, and (3) analyzing research findings for relationships among variables. This framework could have a multipiler effect on the generation of new knowledge about the diffusion process.

Another target audience for this framework is composed of change advocates at the state or local level who need information on available tactics for innovation diffusion. This instrumental audience, close to local education agencies, can use the framework concepts to speed up the acceptance of new ideas, thereby reducing lag time during the installation process.

A third audience for this document is composed of the consumers of innovations located in state and local education agencies or in non-education establishments who must decide whether or not to adopt an innovation. The dimensions of this framework suggest ways in which an innovation may be tried at a minimal cost in disruption or money.

Finally, this conceptual framework may be useful to faculties in higher education who are preparing education extension agents or other types of change agents to diagnose conditions in potential adopting units and to devise strategies for implementing major innovations. Not infrequently, university classes in change processes contain individuals who may be involved in inter-cultural diffusion processes.

Criteria for Conceptualizing the Framework Dimensions[4]

In addition to the previously mentioned desired qualities of reliability and power to explain observations, the builders of the framework used the following criteria for selecting and inventing constructs:

1. Purpose – Each dimension or subdimension should contribute to the understanding of the rational formulation of strategies for diffusion of innovations, the goal of the CVTE program.

2. Simplicity – The framework dimensions and sub-dimensions should be direct and easy to understand.

3. Precision – An attempt should be made not to lose details implicit or explicit in research findings.

4. Empirical Base – The construct should have an empirical data base whenever possible.

5. Parsimony – The smallest number of sub-dimensions should be used to explain the greatest amount of variance in observed behavior.

6. Logic – The sub-dimensions should be logical components of the primary dimensions.

While the developers of the framework concede the meager statements of relationships which exist among the dimensions of the present framework, they see a need for the development of such propositions. *The true test of a theory is in the ability of its users to generate fruitful hypotheses.* Therefore, the "systems model" of innovation diffusion is the goal of this framework; that is, the forces which exert stress and strain on the stability of the system should be described in their state of dynamic equilibrium. Dimensions in the framework which represent mechanisms for bringing about change, e.g., diffusion tactics, should be described in detail. The present version of the framework tends to emphasize stability to the exclusion of the dynamic relationships among the variables. This is a fault which needs to be corrected in future revisions. See Chin's comparison (1967, p. 309) of the system model of change with the developmental model. Broudy (n.d., p. 23) suggests the need to clearly delineate relationships amoung variables:

> If a system has numerous variables and the variables have indefinite potential values, and if they are all interrelated, the explanatory value disappears psychologically, and logically the theory becomes suspect because some of these variables and constructs are probably ad hoc inventions and not supported by evidence apart from the phenomena under scrutiny.

The multiplicity of factors which impinge on the formulation of strategies for the diffusion of innovations provides a challenge to the builders of a conceptual framework in this area.

Assumptions

1. The framework is an oversimplification of reality; its utility as a device for classifying and analyzing research findings is directly related to the quality of judgments exercised in conceptualizing the framework.

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[4]The authors are particularly indebted to Broudy's article (n.d.) on the theoretical adequacy of a conceptual framework of planned change in education.

2. Some form of research and development institutions, such as the present network of regional laboratories and centers, will persist. Thus, the framework constructs are consistent with a modified research, development, and diffusion model.

3. Constructs in the framework are compatible with assumptions of the Diffusion Program at The Center for Vocational and Technical Education.

   3.1. The innovations used in research studies to test the validity of the framework are assumed to be reliable and valid products for the targeted consumer.

   3.2. Diffusion strategies generated by users of the framework are unique to a specific innovation under consideration and particular conditions of the targeted consumer.[5]

4. Vocational educators are constrained by similar circumstances and follow essentially the same psychological processes as non-vocational educators when adopting an innovation.

5. Empirical research findings constitute more reliable evidence for construct formulation than broad generalizations.

Definitions of Key Terms

ADOPTION: a decision to make full use of a new idea as the best course of action available (Rogers, 1971).

COMMUNITY: a group of people who occupy a geographical area and who have a vital interest in the educational system of that area.

CONCEPTUAL FRAMEWORK: a set of mutually consistent dimensions interrelated by logic, based in fact, and ordered at systematic levels of generality.

CONDITION: a state in which various dimensions, sub-dimensions, and elements of the framework can be identified in some relationship to one another.

CONSTRUCT: one or more concepts (abstractions from reality) interrelated by common characteristics as defined by the purpose of the framework.

DIFFUSION PROCESS: acceptance over time of some specific item—an idea or practice—by individuals, groups or other adopting units, linked to specific channels of communication, to a social structure, and to a given system of values or culture (Katz and others, 1963).

DIFFUSION SPECIALIST: an individual in an educational setting who has responsibility for the planning and conducting of innovation diffusion activities.

DIFFUSION STRATEGY: a unique set of mutually consistent techniques used to influence the acceptance of an innovation by a target user system.

DIMENSION: one of a set of coordinates containing sufficient subdimensions to distinguish one aspect of the innovation diffusion process from all others.

ELEMENT: a logically consistent aspect or part of a subdimension.

INNOVATION: a research-based educational product perceived as new by a user.

LINKAGE: communication between two parties, directly or through a third medium (i.e., mass or personal) (Bhola, 1965).

TARGETED CONSUMER: the unit which adopts the innovation being diffused. Most frequently in education, the decision to adopt an innovation is shared by several individuals at different levels in the system (e.g., the curriculum coordinator, building principal, and department chairman in a school system may decide to adopt a new textbook in English).

THEORY: a set of interrelated constructs (concepts), definitions, and propositions that represents a systematic view of phenomena by specifying relations among variables, with the purpose of explaining and predicting the phenomena (Kerlinger, 1964).

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[5]It is necessary to assume the efficacy of the innovations used to test the validity of the framework because the research studies are not designed to evaluate product quality. It is the diffusion strategies which are being evaluated. Since each innovation is slightly different from another innovation, and each targeted consumer has varying conditions, it is necessary to assume the diffusion strategy will be unique: the tactics used in a strategy may be relatively stable, but their sequence and combination within a strategy is perceived to be unique.

Procedures

The Commissioned Papers

As a prelude to the development of the conceptual framework, the CVTE Diffusion Program commissioned two papers to be written by scholars knowledgeable in the area of innovation diffusion. The first paper, written by Brickell (1971) and entitled "Alternative Diffusion Strategies," discussed images of the potential innovation adopter, characteristics of the adoption setting, and characteristics of the innovation and diffusion tactics. The second paper, written by Guba (1971) and entitled "A Diffusion Mechanism for The Center for Vocational and Technical Education," applied Bhola's theory of elitism (1971) to market conditions for research and development products. These papers provided a point of departure for generating the primary dimensions of the conceptual framework.

Review of Diffusion Research and Development Activities

Activities of other diffusion researchers were monitored through personal correspondence, discussions at annual meetings, and reviews of documents representing outputs or progress reports. Agencies conducting diffusion research included other national centers, regional laboratories, private foundations, and university-based research institutes. This information assisted the framework developers in delimiting the scope of the dimensions.

ERIC Search Strategy

A computerized search of the ERIC system was conducted in January 1972. The search strategy used the descriptors of "Models" or "Theories" in conjunction with one or more of the following key terms: Information Utilization, Use Studies, Research Utilization, Diffusion, Innovation, and Adoption (Ideas) to identify citations in *Research in Education* from the year 1967 through September 1971. Only fifteen citations were located.

A hand search of the literature on models and strategies was conducted in July 1972. This search included *Current Index to Journals in Education, Dissertation Abstracts, Education Index, Educational Administration Abstracts,* and journals in the social sciences and the humanities. This search yielded thirty-three citations from the years 1965 to 1972.

Interviews with Implementors of Innovations

Ten directors of innovative projects in secondary and elementary education (including career education) in Ohio were interviewed by diffusion researchers during the months of November and December of 1972. Each interview lasted from one to three hours and frequently included staff members of the local project. The interviews had two purposes: (1) to informally estimate the validity of framework dimensions previously identified through the literature reviews and analyses of the commissioned papers and (2) to identify new tactics used by these directors and their staff members which they perceived to be useful in implementing an innovation among teachers and school administration officials. The mode for all interviews was informal and relaxed, the interviewer recording the unstructured responses. The sample included both rural and urban local education agencies. The project directors interviewed were selected from a list of project directors perceived to be insightful and perceptive in innovation implementation problems in a local school setting. This list was developed from nominations solicited from the Ohio State Department of Education Officials.

The Diffusion Consulting Committee

A group of professionals knowledgeable in the diffusion process and associated with public education systems was convened for two days in January 1973 to review and revise the conceptual framework. Eleven individuals used the framework to classify selected diffusion research findings. In addition, they systematically revised the sub-dimensions. The consultants represented a cross-section of local education agencies, state departments of education, universities, and private research foundations. At least half of the committee members were familiar with vocational education at the state and local levels; two directors of vocational research coordinating units were on the committee.

Selection of Research Findings

The authors first approached the selection of research findings by reviewing the collections of annotated bibliographies such as Maguire and others (1971), Havelock (1969), Kurland and Miller (1966), and Spitzer (1968) in order to gain an awareness of the scope of the factors impinging on the diffusion process. Next, publications such as Brown (1968), Maguire (1970), McClelland (1968), Shalock and Sell (1972), Havelock (1969), and Rogers (1971) were reviewed for specific generalizations which could form the basis for conceptualizing the constructs. Finally, Frohman (1970) and Bertrand and Von Brock (1968) were read for insights into the usefulness of the framework constructs. In the final analysis, emphasis was placed on the development of dimensions which reflect empirical research findings.

Several decision rules were applied in the selection of research findings for the empirical data base of the framework:

1. Whenever research findings were contradictory, the findings from studies of variables in educational settings were used with the assumption that all other considerations were equal.

2. Preference was given to findings from experiment-like inquiries.

3. Isolated findings which were different from previously accepted facts were discounted for the purpose of conceptualizing the sub-dimensions.

These procedures indicate that the conceptual framework is a mix of dimensions induced from research findings gleaned from the literature and the conceptualizations of commissioned paper writers, staff, and consultants knowledgeable in diffusion processes. The framework dimensions proposed in Chapter II represent the second iteration of a review process which should continue indefinitely. Each review and application of new information should result in refinement of the framework. The Diffusion Consulting Committee was the "first cut" towards revision of the framework.

Output from the Diffusion Consulting Committee

The nine member Diffusion Consulting Committee responded to two major performance objectives during their two-day conference.

Performance Objective Number 1

Each committee member was presented with fourteen research findings which had been abstracted from journal articles or reports by CVTE staff members prior to the committee meeting. The degree of rater concensus of the framework dimensions was assessed by having each committee member independently classify each of the research findings according to the three major dimensions of the framework. Figure 1 shows the collective ratings of the committee members by research finding. Two committee members arrived late and were unable to participate in the rating. The seven members who rated the findings agreed unanimously on only one finding. Their average agreement over all ratings was 68 percent. This can be interpreted to mean that 68 percent of the time the raters agreed on the framework dimension classification for the research finding. This could be considered very reasonable when one considers the primitive development of the framework dimensions. The theoretical expected value of agreement would be 33 percent.

The dimensions of the framework were reviewed with committee members prior to their classification; nothing, however, was said to influence the classification of the specific research findings. Caution should be exercised in interpreting the 68 percent agreement among the raters because (1) the research findings were selected by the developers of the framework and some bias in selecting the findings to be classified could be present, and (2) the selection of the findings to be classified was not random. It is interesting to note that research findings numbers 7 through 14 exhibited more variance in their ratings than the previous findings. The latter eight findings were stated as general principles rather than as more precise findings. See Appendix B for the statement of research findings including citations of the research reports.

Performance Objective Number 2

Another major performance objective was the development of a "final outline" of the framework dimensions. The nature of the output on this second objective was influenced by procedures of the committee meeting. Figure 2 shows the major dimensions of the outline as developed by the committee as a whole before they moved into small group discussion of the subdimensions. This paradigm of an innovation diffusion event resulted from a discussion of major factors which influence the formulation of diffusion strategies. Consensus was reached on these dimensions and their relationships as illustrated in Figure 2. This paradigm served to lay the groundwork for small group discussions of the subdimensions and later revision of the entire conceptual framework.

Diffusion Consulting Committee members agreed on descriptions of the paradigm in Figure 2: (1) the relationship between the advocate and the consumer of the innovation constitutes an interaction in which each is affected by the perceptions and dispositions of the other. Perceptions of the innovation are held by both the advocate and the consumer, but the innovation (as an inanimate object) does not hold perceptions. It (the innovation) is subject to change as the process of diffusion takes place, just as the perceptions held by the advocate and the consumer are changed over time. The critical dimension to this paradigm is the strategy dimension which changes with each assessment of the advocate position, the consumer position, and the characteristics of the innovation. The strategy is a plan which can be represented as a dotted line overlapping and influencing the other three dimensions.

The reports of the small groups are listed in Appendix B. They contain suggested substitutions, deletions, and additions to the subdimensions as presented to the committee members. These reports exhibit an amazing amount of similarity in the changes suggested. For example, all small groups wanted to keep "form of the innovation" as a subdimension and were uncomfortable with the labels placed on tactics within the strategy dimension. These three small group reports and the verbal comments from the reporters were synthesized into the subdimensions listed in Chapter II. The reader will note differences between the output from the Diffusion Consulting Committee and the outline presented in Chapter II. Obviously the "final outline" developed by the committee was not "final." Indeed, the authors feel no outline of a conceptual framework will ever be "final" in an absolute sense. Chapter II is the result of further manipulation and refinement of the framework by the CVTE Diffusion Program Staff.

Figure 1
PERCENT AGREEMENT OF RATERS BY RESEARCH FINDING
ON ANY ONE FRAMEWORK CATEGORY

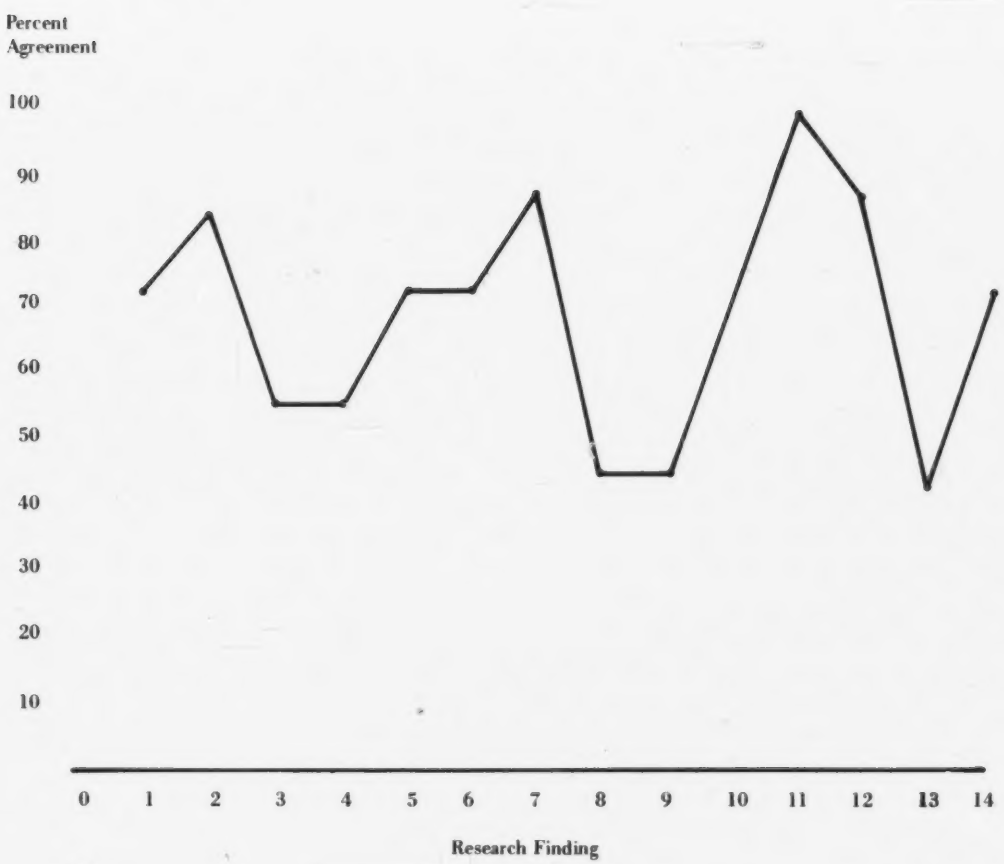
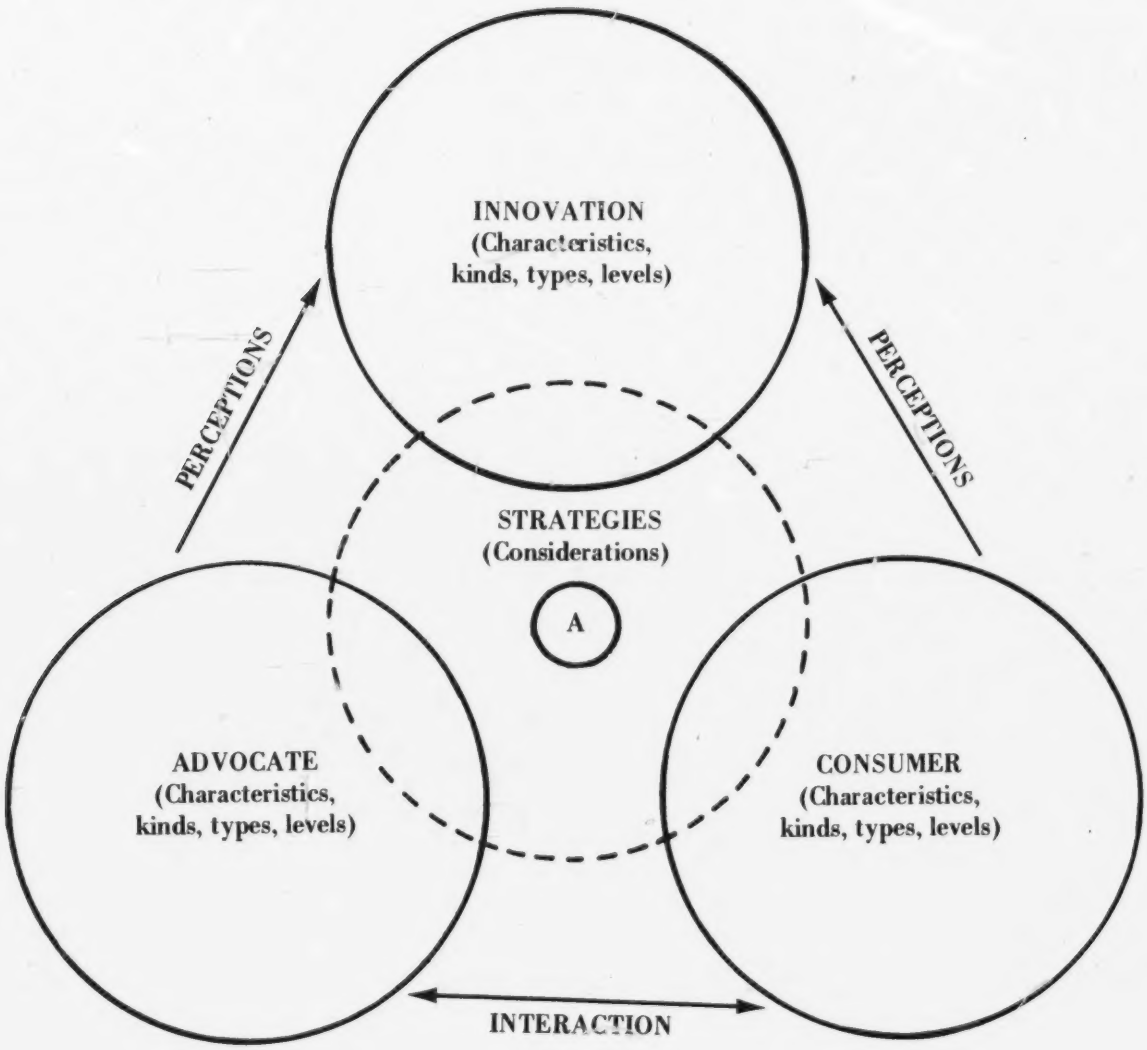


Figure 2
A PARADIGM OF AN INNOVATION DIFFUSION EVENT



CHAPTER II

DIMENSIONS OF THE FRAMEWORK

This chapter includes discussions of the framework dimensions, their interrelationships and developmental origins. The subdimensions are delineated with definitions and examples of research findings relevant to innovation diffusion concepts.

Rationale for the Conceptual Framework

Any attempt to classify diffusion research findings on relatively discrete dimensions of the diffusion process must be considered, at best, a hazardous and ambitious undertaking. Interrelationships among variables are complex. The diversity of research settings further confounds syntheses of isolated results. Therefore, it seems reasonable to rely on paradigms and models already published as a point of departure for identifying and delimiting the major dimensions of this conceptual framework. But first, the authors are eager for the reader to sense the urgency of the need for a conceptual schema which has utility for the generation of innovation diffusion strategies.

Need for the Framework

The decade of the sixties witnessed the development of a network of research and development centers and regional laboratories in education. These institutions were established by the U.S. Office of Education for the purpose of developing new and improved products for educational systems. The advent of such institutions created a need for better understanding of the research and development product utilization.

The financial investment in this system and in other R&D enterprises makes an understanding of the product utilization process imperative. According to the then U.S. Commissioner of Education, Sidney P. Marland, Jr.:

> More than one billion dollars in federal research and development expenditures have produced so little in the way of tangible results in our schools.[6]

In vocational and technical education alone, more than eighty-one (81) million dollars of research and development funds have been administered by the U.S. Commissioner of Education since 1963. Despite this investment of resources, few innovations in vocational and technical education can be traced to this expenditure.

Educators are beginning to recognize the urgency of the need for more knowledge of the innovation diffusion and utilization process. New roles for advocates of change are being developed in institutions of higher education and in secondary education systems. The National Laboratory for Higher Education (1972) has published a monograph on the role and tasks of an Educational Development Officer within institutions of higher education. This facilitator of innovation would be in a position to "short circuit" communication channels when necessary and advise decision makers on the consequences of their intended actions. The Southwest Educational Development Laboratory has published a paper by Ward and others (1971) on the educational catalyst as an imperative for today. These publications clearly indicate the need for assessment and plans which take into account potential obstacles to the acceptance of desirable innovations. This framework is a "first step" towards the analysis of diffusion conditions and elements which permit the formulation of innovation diffusion strategies.

Delimitation of the Framework Dimensions

One of the earliest complete models of the research, development, diffusion, and adoption process was developed by Guba and Clark (1965). It has become classic in its description of the linear process sometimes associated with the invention and development of products in education. Critics of the model suggest the need for more feedback loops between product developers and the intended consumers of the products.

Another model which has stood the test of time is a social-interaction model proposed by Rogers and Shoemaker (1971). This model acknowledges the importance of social system variables (e.g., norm reference groups and communication channels) as they influence the probability of adoption behavior. Rogers' paradigm places diffusion processes in a time frame which emphasizes antecedent conditions and both intended and unintended consequences to an adoption decision. As indicated by McClelland (1968), this model suggests vital roles for interpersonal relationships in the acceptance of innovations. Rogers does indicate some characteristics of innovations which have been documented in

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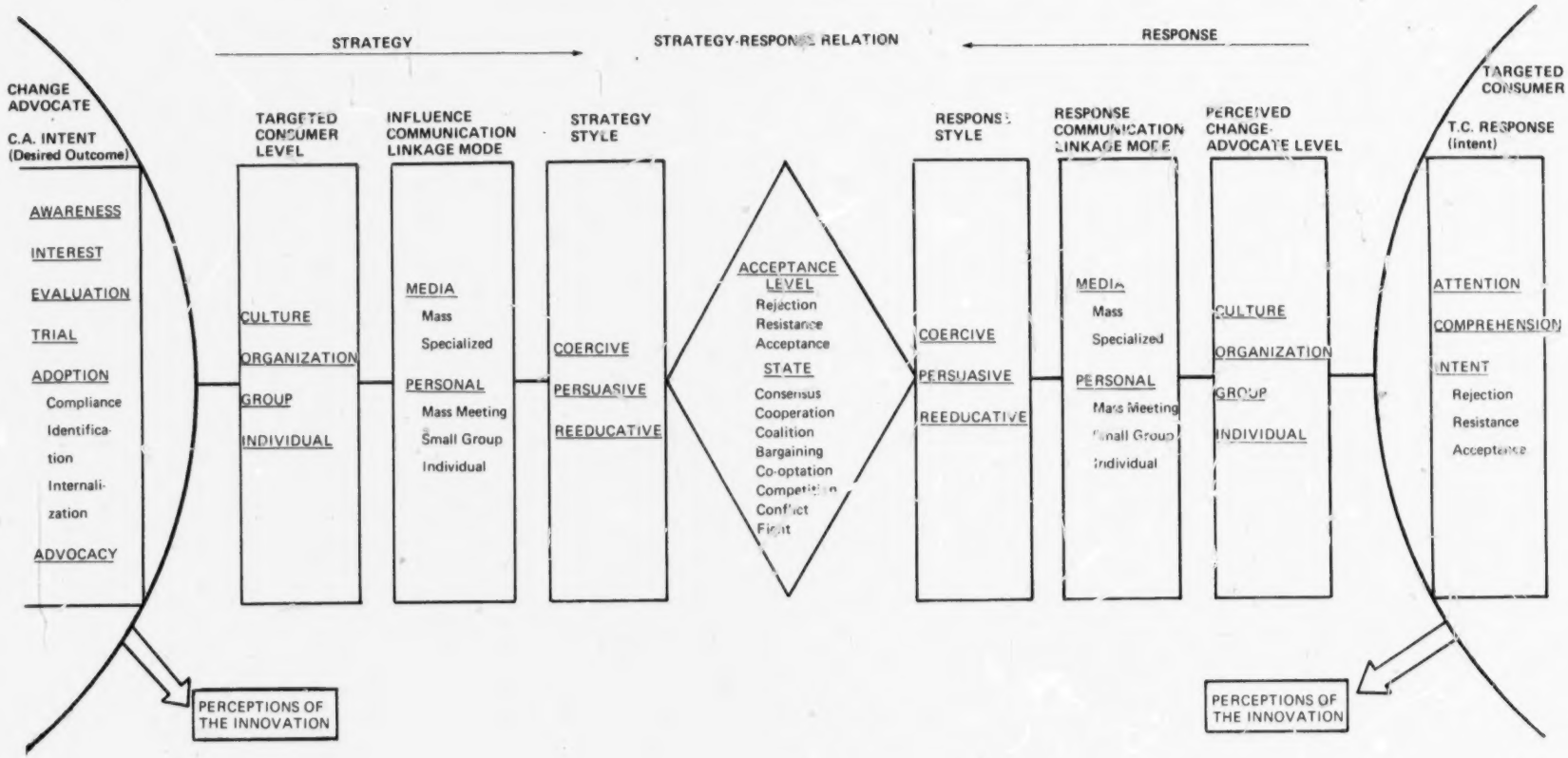
[6] As reported in *Report on Educational Research*, December 8, 1971.

Figure 3
STRUCTURE OF THE STRATEGY - RESPONSE DIMENSION



many research studies. These are relative advantage, compatibility, complexity, trialability, and observability. This focus on the innovation seems to be an important ingredient in any conceptual framework of innovation diffusion.

The third model which is proposed as a synthesis of the others is a linker model developed by Havelock (1969). This interorganizational model links the producers of research and development products (the resource system) with the consumers of the products (the client system). Organizations and individuals function as linkers (consultants or conveyors) of information and/or products. As Havelock points out, these individuals truly are marginal in nature because they must translate the goals and values of one system to another. These linkers are considered the prime users of strategies for diffusing innovations.

Niehoff and Anderson (1964) have illustrated the implementation of innovation as the integration of change agent behavior with recipient behavior. Over time, the installation of an innovation occurs due to the forces of traditional culture such as the social structure and belief system, interacting with the role, timing, and environment of the change agent. Bhola (1967) points out that the configuration of the individual within a group, institution, and culture sets limits on what is possible with an innovation diffusion strategy. Chin (1967) has described classes of change strategies as they have evolved over time. Actors (within limits set by their roles) tend to exhibit certain styles. Three classes of strategies are mentioned by Chin: power-coercive, normative-reeducative, and rational-empirical.

It would behoove any individual using strategies or tactics to install an innovation to attend to some of the assumptions suggested by Guba (1968): there are assumptions about the nature of the adopter, the agency carrying out the diffusion activity, and the substance of the invention. All of these assumptions are visible in some form in the proposed dimensions of the framework. The assumption about the end state of the adopting unit needs additional attention in the present version of the framework. Nevertheless, it is identified as a major dimension because of the implications it has for the selection of tactics when installing an innovation. The following discussion presents an overview of the parameters of the major dimensions of the framework.

Discussion of the Major Dimensions

Introduction

The preceding section has outlined the rationale and basic paradigm of the conceptual framework. This section will delineate the parameters of the five dimensions and discuss the dynamic character of the process as it relates to the framework outline (which follows this section).

The term conceptual framework, as it is used within this study, refers to both structural and relational aspects of the phenomenon of diffusion. The structural aspects are analogous to the anatomy or basic elements of the phenomenon. The term structure is used to imply a consistency of certain elements, but does not imply a static or non-change state. In other words, it is very possible that during a diffusion event, the structural aspects of any one of the dimensions may change. However, at any given point in time, a structural aspect can be identified. On the other hand, the relational aspects are more analagous to a discussion of the kinesiology (the study of the movement) of the structural aspects. This implies a time sequence. To identify the relational aspects of the diffusion process, one must in a sense take a motion picture of the situation, rather than a snapshot, although several sequential snapshots can provide enough information to determine the relational aspects.

The conceptual framework presented in this study consists of three relational conditions and five structural dimensions. The relational conditions are: (1) the antecedent condition; (2) the interactive condition; and (3) the consequent condition. The five structural dimensions of the framework are represented under one of the three relational conditions:

1. The antecedent condition consists of the structural dimensions of the (1) change advocate, (2) targeted consumer, and (3) innovation;
2. The interactive condition consists of the structural dimension of the strategy-response; and
3. The consequent condition consists of the structural dimension of impact.

After the discussion of the structural dimensions, there will be an attempt to analyze potential aspects of the relational conditions.[7] However, the complexities of the diffusion phenomenon are of such magnitude that the discussion of the relational aspects represents only an outline of possibilities.

Structural Aspects of the Major Dimensions

The antecedent conditions are ingredients which form the substance of the diffusion event. If any one of these elements is absent, the event of diffusion cannot occur. The term change advocate has several connotations. The advocate has the initiative for the diffusion event. In other words, diffusion

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[7]The reader is encouraged to refer to the definitions in the outline and definition of key term section for further explanation of the terminology.

cannot occur without an initiator (i.e., an advocate). The term change implies the advocacy of something other than the status quo. Conceptually, the change advocate can be an individual, a group, an institution or organization, or a culture (Bhola, 1965). Typically, within the context of education, the change advocate is viewed as an individual, group or organization. Internal and external to these levels, it can be assumed that there will be both endogenous and exogenous factors related to the change advocate which serve as potential barriers or facilitators to any initiation of change by the advocate. Briefly, these factors would consist of the interaction of the aspects of the individual advocate, his representative organization (i.e., both the formal and social aspects), and other community or cultural environmental factors.

The *targeted consumer* is another necessary antecedent element. The term consumer emphasizes the ultimate utilization of the innovation rather than any instrumental targeted audience acceptance. The term targeted highlights the need for selectivity when initiating an innovation with an ultimate consumer. In other words, the diffusion process is assumed to be planned where specific consumers are selected by outsiders or self-selected. The targeted consumer, like the change advocate, can be conceptualized as an individual, group, organization or institution, or culture. As with the change advocate, typically, the targeted consumer is an individual, group or organization. Ultimately, it can be assumed that all diffusion events occur via individuals (Bhola, 1965). The targeted consumer, viewed as a discrete element in the diffusion process, can be considered parallel in structural factors with the change advocate. In other words, both are either individuals, groups, or organizations in which their essence is the synthesis of the interaction of the endogenous and exogenous factors previously mentioned.

The *innovation* is the third essential antecedent condition in the diffusion event. The basic subdimensions of the innovation are form and characteristics. The notion of perceived characteristics is viewed as encompassing all of the aspects of the innovation. That is, the innovation is being presented by an advocate and viewed by a consumer, who both may have very different cognitive sets toward these elements.

In summary, the antecedent conditions to any diffusion event necessarily include (1) the change advocate, (2) the targeted consumer, and (3) the innovation. Each of these is a typically discrete entity and can be identified in a diffusion event at any given point in time. The notion of a point in time is important because the roles of change advocate and targeted consumer may reverse in the interaction process. The innovation may also be considerably different at different points in time. More discussion concerning this point will be brought out in the discussion of the relational aspects of the framework.

The *interactive condition* of the diffusion process is most critical as the synthesizer of the antecedent elements. The interactive condition consists of the strategy-response dimension (refer to Figure 3 for a graphic representation of this dimension). This dimension consists of three elements: (1) the strategy, as initiated by the change advocate; (2) the response, as initiated by the targeted consumer; and (3) the strategy-response relation, in which the change advocate and targeted consumer are found in a given point in time. The strategy is the prerogative of the change advocate based on his assessment of the situation (e.g., targeted consumer and innovation) and the intended outcome (e.g., awareness, interest, evaluation, trial, adoption, or advocacy). The strategy is conceived as having three basic structural elements: (1) the level (e.g., culture, organization, group, or individual) at which the message (innovation) is being targeted; (2) the communication linkage modes (e.g., media or personal); and (3) the strategy style (e.g., coercive, persuasive, or reeducative). These elements provide the setting for communicating an innovation to the targeted consumer.

Another assumed element of the interactive dimension is the response. The response element of the interactive dimension suggests a reactive nature in the targeted consumer. The concept of a strategy and interactive dimension implies a response. (One level of response is "no response.") Depending on the attention, comprehension, and intent (i.e., acceptance or resistance) of the targeted consumer, a particular response can be identified, extending from rejection through resistance to acceptance. Where the consumer is on this continuum is considered the intent of the consumer's response.

The structural aspects of the consumer's response are considered parallel to the structural aspects of the strategy. Specifically, the response will be directed toward the perceived change advocate level (e.g., individual, group, organization and/or culture) and through some communication linkage mode (e.g., mass or specialized media or personal response) within the context of a basic response style (e.g., coercive, persuasive, or reeducative). When the strategy is initiated and the response is returned, the change advocate and targeted consumer find themselves in what conceptually could be referred to as a strategy-response relation.

The structural aspects of the strategy-response relation are an acceptance level and a state. The acceptance level refers to the basic continuum of response (e.g., rejection through resistance to some type of acceptance, either compliant, calculative or moral).[8] The state of the strategy-response relation describes the basic nature of the interaction that is

[8]The notions of compliant, calculative and moral involvement are adapted from Schien (1965).

occurring between the two parties. Some terms that are used to describe this state are: consensus, cooperation, coalition, bargaining or negotiation, co-optation, competition or confrontation, conflict, and flight or withdrawal. Once the interaction has occurred, it is considered to result in some effect on the antecedent elements. This effect is referred to as the impact of the diffusion event, and results in the consequent condition.

The consequent condition includes the impact dimension which is assumed to be the result of a diffusion event. In other words, the diffusion event could result in some change in the advocate, the targeted consumer, and/or the innovation. Structurally, the conceptual aspects of the impact dimensions are: cognitive effects, affective effects, and behavioral effects.[8] The cognitive effects refer to such things as: knowledge of the product, advocate, or consumer; problem recognition; comprehension; and awareness. The affective effects refer to elements such as interest and evaluation. The behavioral effects are considered to be more overt elements of the impact and consist of actions such as acceptance or resistance behavior, decision to use, and advocacy. These structural aspects of the impact of a diffusion event can be seen as a template which can be laid on the diffusion process at any given point in time after the antecedent conditions have been met and the interaction has been initiated. The substance of what will be viewed will be dictated by whoever is doing the assessing and for what purpose. Most likely, the crucial factor that is considered in most impact assessments is whether the intended outcomes, based on the goals of the change advocate and his assessment of the purpose of the innovation, became actual outcomes.

Relational Aspects of the Major Dimensions

The relational aspects of the diffusion conceptual framework consist of various conditions over time. Three conditions are identified to explain the basic relational aspects of the diffusion event: (1) the antecedent condition, (2) the interaction condition, and (3) the consequent condition. The antecedent condition refers to a point in time prior to any initiation of a strategy or response by the targeted consumer. The interaction condition refers to the strategy and response time in which the change agent and targeted consumer are communicating or receiving messages. The consequent condition is a point in time after at least one iteration of the interaction condition in which some effect has resulted.

Using these three conditions, one can explain the motion involved in the diffusion process. In the antecedent condition, all of the various subdimensions of the change advocate, targeted consumer, and innovation are interacting, resulting in their movement individually, but not necessarily together (refer to time one on Figure 4). If diffusion is to occur, then at some point in time, the three antecedent conditions must come into contact and the interaction condition occurs (refer to time two on Figure 4). The particular origin of the interaction can occur in a variety of ways. Some cases will be explained later in the discussion. At the point of interaction, the complete set of antecedent conditions are met and the diffusion event begins. In this condition, represented by the middle paradigm in Figure 5, the numerous variables in each of the antecedent conditions begin to come in contact. These include: (1) the change advocate factors, which now include his perceptions of the innovation and targeted consumer; (2) the targeted consumer and his perceptions of the innovation and the change advocate; and (3) all the numerous perceptions occurring[9] as a result of the strategy-response dimension.

After the first iteration of the interaction, some effects are assumed to occur. At any point in time, during or after the interaction condition, one can conceptually stop action and analyze the consequences of a particular diffusion event. This analysis is the measure of the impact (refer to time three in Figure 4) which has previously been stated as occurring to any part of the previously mentioned conditions.

The diffusion event can begin in various ways. Four cases are presented in Figure 5. Case I represents the initiation of contact by the change advocate in which he assesses the needs of the targeted consumer (A); selects an appropriate innovation unilaterally, and devises a strategy to gain acceptance of the innovation (B); he then initiates the strategy and begins the interaction (C). Case II represents the situation in which the change advocate has or develops an innovation (A); selects the target and devices the strategy (B); and initiates the interaction (C). Case III focuses on the initiative of the targeted consumer in making contact with the change advocate (A); the change advocate and targeted consumer assessing the problem (B); and the innovation being selected either unilaterally or cooperatively by the two parties and then the interaction beginning (C). Case IV, the final example, represents the situation in which the targeted consumer has identified an innovation which he wants and the salience of the change advocate is not strong (A); the targeted consumer may then initiate contact with a change advocate or choose to adopt or reject more or less on his own initiative (B). These may not be all of the possible cases, but they set the stage for consideration of the different interactions and consequences that may occur depending on how the diffusion event originated.

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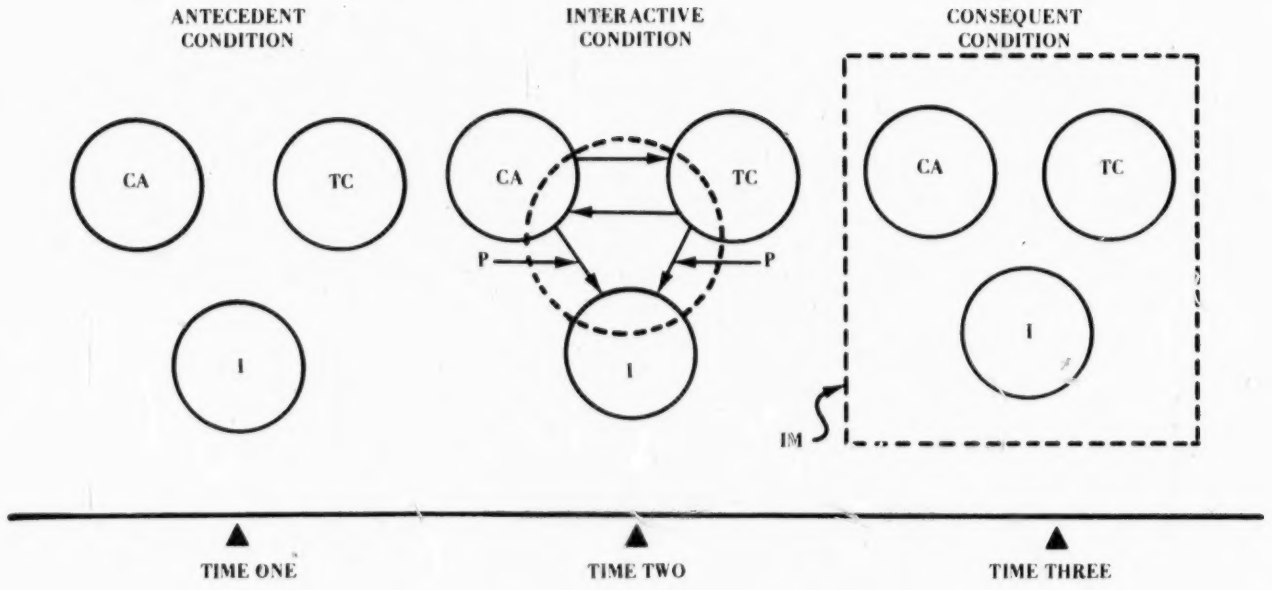
[9]The essential notions of impact have been adapted from concepts developed by McCaslin and Walton (1972).

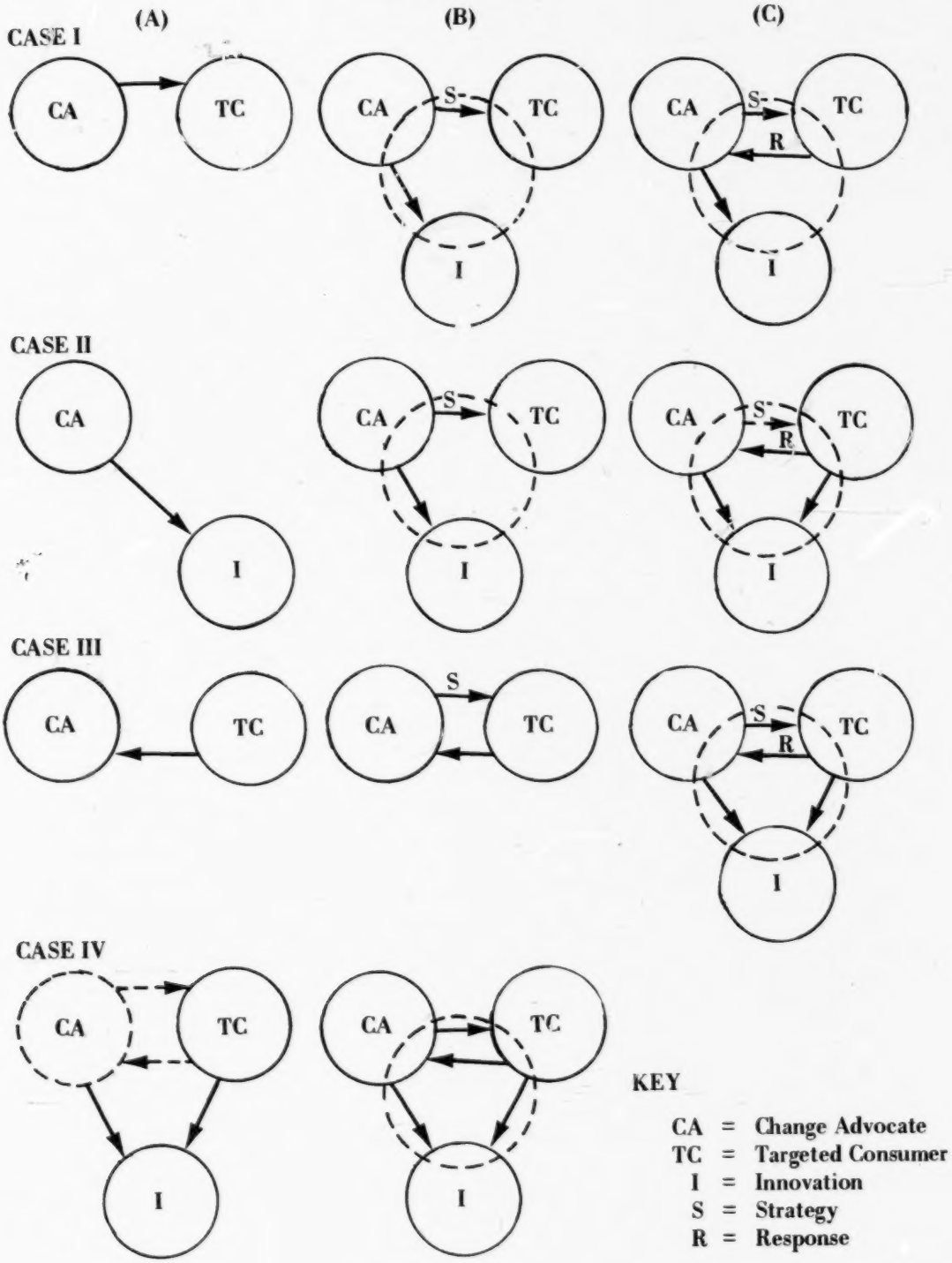
Figure 4
RELATIONAL CONDITIONS OF THE MAJOR DIMENSIONS



*KEY

CA = Change Advocate
TC = Targeted Consumer
I = Innovation
SR = Strategy-Response
P = Perception
IM = Impact

Figure 5
REPRESENTATIVE CASES OF THE ORIGIN OF THE
DIFFUSION PROCESS



Numerous studies have dealt with the various interactions which may occur between the change advocate, the innovation, and the targeted consumer. The framework constructed within this study should be inclusive enough to discuss all possible interactions which might occur as the result of any diffusion event. As mentioned at the outset of this study, the framework can serve several functions. One might be to describe, analyze, or research a diffusion event. Another might be to gain insight into the possible factors involved when dealing with a diffusion event, either as a change advocate or targeted consumer.

Subdimensions of the Framework

I. Innovation Dimension

Innovation is defined as a research-based educational product perceived as new by a user. The nature of an innovation consists of two components or subdimensions: form and characteristics.

A. Form of the Innovation

The form of an innovation dictates the type of diffusion tactics which are likely to be used with it.

1. Information Documents constitute a form of innovation which contains information about an innovation or cites sources where further, more detailed information can be obtained. The objective of this form of innovation is to be informative.

2. Training Materials, on the other hand, attempt to instruct the targeted consumer in an innovative endeavor. The objective of this form of innovation is to instruct. Frequently, these materials would be used in a group setting.

3. An Installable System is an innovation which is more comprehensive than the two previous forms. It is concerned not only with being informative and instructive, but also with establishing new behaviors and/or relationships among individuals and groups within the organization. An installable system may require a change in organizational structure. An installable system may be classified as:

   a. Organizational. The innovation may be organizational in nature (Miller, 1970). This involves a change in the structure of the present system. Changes in instruction or behavior may be non-existent or minimal.

   b. Instructional. An installable system may take the form of instructional materials. This type of innovation involves a change in the content and/or form of the curriculum.

   c. Methodological. This type of innovation involves a change in behavior on the part of staff members. For example, a teacher may be required by an innovative installable system to change his methods of teaching in the classroom.

B. Characteristics of the Innovation

Characteristics of the innovation refers to how the innovation is viewed by the user or potential user. These perceptions may or may not reflect actual circumstances. In fact, they may be extremely subjective. But, as Rogers (1962, p. 124) has said, "It matters little whether or not an innovation has a great degree of advantage over the idea replacing it. What does matter is whether the individual perceives the relative advantage of the innovation."

1. Relative Advantage. Relative advantage is the degree to which an innovation is viewed as better than the idea or process it replaces (Rogers, 1962). The advantage of an innovation may be viewed in terms of its costs and benefits to the user when compared to a competing innovation. It may be viewed as increasing the efficiency of operations within the system, or it may be viewed as improving student learning. Perhaps the advantage of a particular innovation may be added prestige or publicity.

2. Compatibility. Compatibility is the degree to which an innovation is consistent with existing values and past experiences of the adopter (Rogers, 1962, p. 127)." Therefore,

for adoption of an innovation to result, it must be perceived as compatible with existing norms of behavior. Likewise the innovation must be viewed as feasible–that it will work in the adopter's situation. Perceptions may also be made regarding necessary policy changes needed to guarantee success of the innovation (Hull and Wells, 1972).

3. Complexity. Rogers (1962, p. 130) defines complexity as "the degree to which an innovation is relatively difficult to understand and use." The relation of complexity to adoption is an indirect relationship. The less complex an innovation is perceived to be, the higher the probability that he adoption will result.

4. Trialability. Trialability is the degree to which an innovation can be broken down and tried in installments or on a limited basis (Rogers and Shoemaker, 1971). Trialability allows for adaptability. The more trialable an innovation is perceived to be, the more likely adoption will occur.

5. Observability. Observability is the degree to which the innovation can be seen, communicated and diffused to others (Rogers and Shoemaker, 1971). The higher the degree of observability, the more readily an innovation can be diffused.

6. Financial Costs. Perception of how much an innovation will cost will affect the rate of adoption. The cost over time may be determined along with the determination of whether the innovation will involve a long term savings. Sources of funding and availability of monies also may be perceived.

7. Time Considerations. Time considerations involve perceptions of time required for installation. In addition, it involves how much lead time is needed for ordering and receiving, how much planning time is required, and how much time out of the daily operation the innovation will consume. Another time consideration may regard the need to install in a particular time of calendar or academic year (Hull and Wells, 1972).

8. Space Requirements. These perceptions involve housing or land use facilities for the innovation. It may be perceived that the innovation may be housed in existing facilities, or present facilities may need to be reorganized to accommodate the innovation, or new space will have to be acquired (Hull and Wells, 1972).

9. Magnitude of Innovation. The magnitude of innovations refers to the extent or degree the innovation is revising or requiring change in the target user system. The kind of innovation, the form of the innovation, and the perceived characteristics of the innovation can all exist in varying degrees or magnitudes. The magnitude of a particular innovation may not only depend on the nature of the innovation itself, but also circumstances, norms, and perceptions within the user target system.

10. Value Orientation. The innovation may also require various changes in organizational members' value orientations (Chin, 1964). Such innovations as programmed instruction may require relatively low value reorientations, whereas, desegregation of schools may require gross value reorientation. A value reorientation may be implicit in organizational, instructional, and methodological innovations.

11. Specification of Support Needed. The innovation may require the development of certain skills, roles, capacities, or competencies not possessed by present personnel or organizational structure. Such things as additional training and evaluation, or ample supplies may be necessary to adequately support the innovation.

II. Targeted Consumer Dimension

The targeted consumer is characterized by a complex interaction of groups and individuals. Basically, these interactions can be divided into four main groups: the community setting, the formal organizational structure, social organizational variables, and individual user variables.

A. Community Setting

Community setting refers to a group of people who occupy a geographic area and who have a vital interest in the educational system of that area.

1. Size. Community size refers to the number of people living within the geographic boundaries of the educational system. The size of a community may have some bearing on a school's ability to innovate. Cawelti (1967) found that areas over 5,000 in population were more innovative than areas below that figure. However, Hawkins (1968) found no relationship between size of community and its inclination to innovate.

2. Location or Setting. Community location or setting refers to geographic characteristics of the community such as urban, suburban, or rural. The effect of a community's location or setting on a school district's inclination to be innovative is unclear. On an urban-rural dichotomy, Bishop (1970) found schools in urban settings more innovative than schools in rural settings. And, in a national survey, Cawelti (1967) found that innovative districts tended to be located in suburban-urban communities. Nevertheless, Peterfreund (1970) found that neither location of schools nor regional characteristics have a relationship with innovative characteristics of schools.

3. Socio-economic Background. Socio-economic background of the community refers to the social and economic class composition of the community. It is questionable whether the socio-economic background of a community affects the innovativeness of the schools. Crain (1966) and Hawkins (1968) found that white, middle-class communities tend to support innovation in schools. Nevertheless, Peterfreund (1970) found no correlation between sociological background of the community and the innovative characteristics of the schools. Peterfreund (1970) also found that the range of student bodies' abilities, backgrounds, or goals failed to correlate with the school's propensity to innovate.

4. Community Pressure. Community pressure refers to the degree of influence the community can bring to bear upon the school system. With more certainty, it can be stated that pressures from the community can influence a school's innovative inclinations. Drumheller (1971) maintains that communities tend to convey a conservative influence on to the schools since they usually support traditional school structures. In addition, a school's ability to innovate may depend on the community's acceptance of the innovation (Hawkins, 1968). However, Peterfreund (1970) found parental pressure influential only when a specific crisis or conflict arose. Otherwise, parents tended to be passive and apathetic.

5. Community Values. The belief system of the community affects how the community responds to school innovation. Community belief systems have been shown to influence the attitudes and behaviors of parents, community leaders, teachers, and school administrators toward each other and toward the school system (Gottesfeld, 1969).

B. Formal Organization

The formal organization refers to the structural or static qualities of the targeted consumer as opposed to the more dynamic or social, give-and-take relationships discussed in the next section.

1. Span of Control. Span of control refers to the number of employees reporting directly to a supervisor. The span of control of an organization is commonly reflected in an organizational chart or diagram. An organization may be described as flat (a relatively short distance between lowest and highest level employees) or tall (a considerable distance from lowest to highest level employees) (Bell, 1970).

2. Organizational Complexity. Organizational complexity is the degree of division of labor, levels of authority structure, and number of employees. Organizational complexity increases as the division of labor

(specialization), levels of authority, and number of employees increases. The degree of organizational complexity or degree of bureaucracy has been identified as a variable related to the extent of innovations within an organization (Bishop, 1970); (Hage and Dewar, 1971).

3. Organizational Size. Organizational size refers to the number of employees working within the organization. The size of a school district has been found to relate to the district's extent of innovativeness (Hawkins, 1968); (Bishop, 1970). However, Peterfreund (1970) has found no correlation between the number of students in a district and innovativeness. On the other hand, the size of a school staff has been identified as an important variable when studying innovation within school organizations (Cawelti, 1971); (Currie, 1967); (Johnson and Marcum, 1969).

4. Leadership Role Expectations. Leader role expectation is the defined authority and responsibility an individual maintains as a result of his position in the organization. The role of the superintendent has been found to be vital if innovation within a school system is to take place (Hughes, 1965); (Hawkins, 1968). The turnover rate of the superintendent and succession of the superintendent from inside or outside the system have also been variables under study (Bishop, 1970). Other leadership positions which have appeared as important variables are the principal, the director of research, the school board, and the state department of education.

5. Expenditure of Funds. Expenditure of funds is the amount of monies expended by the organization. In educational organizations, spending is commonly measured by expenditure per pupil. In 1965, Carlson broke the myth that amount of expenditure per pupil serves as a valid predictor of adoption of innovations. Since then, research findings have been conflicting. Currie (1966) and Peterfreund (1970) confirm Carlson's findings. However, Cawelti (1967) found that districts with an expenditure per pupil of over $650 tended to be more innovative. Two other investigations found a positive relationship between higher expenditures per pupil and propensity to innovate (Hughes, 1965); (Johnson and Marcum, 1969).

6. The Availability of Funds. The degree that monies are readily at hand for expenditure is the meaning of the availability of funds. The availability of funds to initiate innovation seems to be an important factor (Currie, 1966). However, in general, there has been no relation found between size of resources and propensity to innovate (Hage and Dewar, 1971); (Peterfreund, 1970). Hawkins (1968) likewise found no relationship between district wealth, financial support and propensity to innovate.

C. Social Organizational Variables

The social organizational variables result from the interactions of individuals within a formal and informal group situation. They reflect dynamic relationship among and between groups and individuals within the organization.

1. Communication Channels. Communication is the process by which messages are transmitted from a source to a receiver. A communication channel is the mechanism through which the message gets from the source to the receiver (Rogers and Shoemaker, 1971).

   The direction of communication flow has been identified as an important variable when studying organizational innovation (Peterfreund, 1970). The openness of the communication network also has been correlated with a greater tendency for an organization to be innovative (Hawkins, 1968); (Johnson and Marcum, 1969).

   There also seems to be a relationship between the number of information sources available to an organization and a tendency to be innovative (Klingenberg, 1967); (Carlson, 1965). Crandall (1972) has found that the information available to members of an organization directly relates to their propensity to internalize an innovation.

2. Leadership Attitudes and Behavior. How a leader behaves and feels within the framework of his assigned role within the organization has an impact on the extent of diffusion of an innovation within the organization. The attitudes and competencies of school leaders have been found to be one of the most important variables when studying the diffusion of innovation within an organization (Gross, 1971); (Hage and Dewar, 1971).

3. Type of Innovation Decision. The type of decision made by organization leaders may affect how the rate of adoption is measured within an organization. If the decision to adopt made by one authority or a collective group of people, is one to encompass the entire organization, the organization, rather than the individual member, is the unit of adoption to be studied. If, on the other hand, an optional decision is made by organizational leaders, the individual within the organization feels free to accept or reject the decision. Individual adoption rate would be an important variable in this case. Likewise, when a contingent decision—one in which an individual is allowed to make a choice to adopt or reject only after the organization has decided to adopt—is made, the individual adoption rate would also be an important variable (Lin, et al, 1966).

4. Group Relations. Institutional norms and goals have been found to correlate with overt behaviors of members of the organization (Peterfreund, 1970); (Gillie, 1971).

   Innovation adoption tends to follow friendship patterns (Carlson, 1965). The importance of this informal group structure has also been pointed up by Eibler (1965) who identified a group cohesiveness or a feeling of "we-ness" as correlated with innovation adoption. In addition, Hughes (1965) isolated group esprit as correlating with a propensity to be innovative.

   Group tradition has been found to affect innovativeness, since past rates of organizational innovation have been found to correlate with present rates of innovation (Hage and Dewar, 1971).

   Staff turnover has also been identified as an important variable in the study of diffusion of innovation (Johnson and Marcum, 1969).

   Group participation and involvement in the diffusion process has been found to correlate with organizational innovativeness in schools (Eibler, 1965); (Klingenberg, 1967). Carlson (1965) has found that early adopters are involved in the social network of the school, and Crandall (1972) has found that the change orientation of teachers is directly related to their perceived power in the decision-making process.

   Time may be an important factor in the study of organizational acceptance of an innovation. Forrester (1969) has speculated that group behavior in a complex system may often react to a policy change in the long run in a way opposite to how they react in the short run. Gross (1971) has related how teachers who originally held positive orientations toward an innovation, developed negative orientations after the innovation was introduced.

5. Financial Resourcefulness. Financial resourcefulness refers to the ability to secure and control the utilization of funds effectively and efficiently. This quality has been identified as an important factor in the diffusion process within educational organizations (Peterfreund, 1970).

D. Individual Consumer

The individual consumer, or final adopter of the innovation, is made up of personological characteristics. Personological characteristics refer to the biographical demographics, cognitive and affective characteristics, and behavior patterns of the individual.

1. Biographical Demographics. Age may be a factor affecting individual adoption of an innovation. Innovators tend to be younger than non-innovators (Carlson, 1965). Hull

and others (in press) found opinion leaders in two state divisions of vocational and technical education no older and no more experienced than isolates in the same organizations.

Just how the number of years of experience correlates with individual innovations is not clear. Carlson (1965) found a correlation between shorter tenure and early adoption. On the other hand, an increased number of years of experience was found to correlate with individual adoption (Klingenberg, 1967); (Crandall, 1972).

2. Individual Consumer's Attitudes. Personal attitudes and perceptions are key variables in the study of the diffusion process. A teacher's attitude toward an innovation is directly related to innovation internalization and change orientation. A teacher's perceived advantages and disadvantages of the innovation to the students affects his innovation internalization and change orientation. His perceptions of a students' attitudes of receptivity toward the innovation also were directly related to his change orientation (Crandall, 1972).

   Nedd (1971) found that an individual's propensity to take risks is directly related to innovativeness. An individual's dissatisfaction with the status quo is also directly related to an individual's propensity to be innovative (Peterfreund, 1970).

3. Behavior of Individual Consumer. Professional activity has been found to be an important individual characteristic affecting innovation adoption. The more meetings and interaction with peers and the higher professional rating by peers, the more tendency for an individual to be an early adopter (Carlson, 1965). Hage and Dewar (1971) found that professional activity correlates high with individual innovativeness.

   An individual's competency to complete the desired task or role has emerged as an important variable. Drumheller (1971) cautions the prospective innovator that many teachers may be incapable of devising or managing innovative structures. In addition, Gross (1971) found that the lack of teacher competency contributed to the failure of an innovative attempt to reorganize an elementary school.

III. Change Advocate Dimension

The subdimensions under this major dimension have not been described in sufficient detail to list in this version of the conceptual framework. The CVTE Diffusion Program staff tends to agree with the recommendation of the Diffusion Consulting Committee for subdimensions parallel to the Targeted Consumer Dimension. The advocate and consumer roles tend to be didactic in their relationship. In fact, the actors can reverse roles depending upon their degree of support for a proposed innovation.

IV. Strategy–Response Dimension[10]

The strategy-response dimension is seen as the interactive element of the diffusion event. A diffusion strategy is defined as a unique set of mutually consistent techniques used to influence the acceptance of an innovation by a targeted consumer. A response is defined as a unique set of mutually consistent techniques used to react to a strategy. The structural aspects of this dimension are delineated by four subdimensions: level, communication linkage mode, style and strategy-response relation. These structural subdimensions are applied to both the strategy and response elements of this dimension.

A. Level

The level refers to where the communication is directed. Conceptually, they are defined here as being an individual, group, organization or culture (Bhola, 1965). From the change advocate perspective, this level is referred to as the targeted consumer level and, from the response perspective, it is labeled the perceived change advocate level.

[10]Refer to Figure 3 for a graphic representation of this dimension.

B. Communication Linkage Mode

The communication linkage mode is the channel and process through and by which a message is transmitted. It consists of media and/or personal elements. The communication linkage mode is structurally identical for both the strategy and response (Kotler, 1972).

1. Media is defined as those channels which deliver messages which are detached from an interpersonal context (e.g., television, radio, magazines, newspapers, newsletters, annual reports) (Kotler, 1972).

2. Personal elements are defined as those which imply interpersonal contact (e.g., mass meetings, small groups, individual visitations) (Kotler, 1972).

C. Style

The style element of the strategy-response dimension is defined as the underlying approach which is used by the change advocate and targeted consumer in this interactive process. There are three categorizations used here: coercive, persuasive and reeducative.

1. Coercive is defined as a style that attempts to produce (i.e., strategy) or resist (respond) the desired behavior through compliance or cooperation with the use of unilaterally controlled sanctions.[11] In other words, sanctions which are held only by the person initiating the strategy or response. From the strategy perspective, it is to produce behavioral compliance in the targeted consumer. Whereas, from the response perspective, it is basically a defense style. Some examples of coercive styles follow.

   The examples of styles presented under the categories are basically representative of strategy styles rather than response styles, although many of these examples could easily be reinterpreted in terms of the response perspective.

   a. Financial support utilizes money to support innovations. It may involve the use of a cost/benefit analysis to determine whether the innovation is a good investment. Implicit in this strategy is the concept of pump priming, which is the use of initial funds to encourage innovation. Other subsidies may be portioned over the long run to insure or help continue the innovation.

   b. Tactical reinforcement is the use of strategic positive reinforcement to encourage innovation. Innovation can be rewarded through increases in salary and/or promotion in position. In the long run, tactical reinforcement emphasizes approval, publicity and reward for innovative endeavors within the system.

   c. Reorganization of the system. The theory behind this approach is that the system can be reorganized to become more receptive to, or more stimulating of, innovativeness. Bell (1970) found flat administrative structures most effective for completion of administrative accomplishment. Levine (1971) stressed the advantages of less complex institutions for the encouragement of innovativeness.

   d. Personal Selection and Replacement. This approach emphasizes the development of a change orientation within the system through the use of selective hiring procedures. Emphasis is placed on the screening and hiring of innovative personnel or potentially innovative personnel. Also, this strategy stresses the necessity of changing the leader of the system by bringing in an outsider. His external orientation then becomes a catalyst for change.

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[11] This definition was adapted from Kotler's definition of power strategy (Kotler, 1972, p. 183).

e. Internal Change Agent. The rationale behind the creation of an internal change agent position is to have a catalyst inside the system to encourage and stimulate change. Such a position is often titled director of research and development. Integral members of the system such as administrators or teachers may also take on an internal change agent role.

f. Fait Accompli. As defined by Havelock (1970), fait accompli is the installation of an innovation by the authority without consulting the users and without informing them in advance. It eliminates initial resistance. It also is hoped that the benefits of innovation will become apparent after implementation.

g. Legal Mandate. A legal mandate may take the form of a school board decision, legislative enactment, or judicial decision. Compliance with the law or rule is expected.

h. Political sanctions may take the form of a legal mandate, or they may take a more subtle turn such as political reward for compliance or threat of political reprisal if compliance is resisted.

i. Economic Sanctions. Economic sanctions may be used to encourage compliance with an innovation. Promises of more funds as a result of compliance may result; or loss of funds as a result of failure to comply may also be a consequence.

j. Strike. A strike is a form of sanction which uses withdrawal of services to induce compliance or cooperation.

k. Boycott. A boycott is a form of economic sanction which uses refusal to engage in an activity to produce some effect.

2. Persuasion is a style that attempts to induce (i.e., strategy) or respond (i.e., response) to a desired behavior through identifying the social object (e.g., innovation) with existing beliefs or values[12] in the targeted consumer. On the other hand, the targeted consumer would appeal to beliefs or values in the change advocate as a response style. Some possible appeals could be to logic, emotion or moral aspects of the social object. Some examples follow. Again, these tend to be in terms of strategies rather than responses, but could be translated for the respondent.

   a. Progressive Influence. This approach is referred to as a stepping stone process by Havelock (1970). The approach is to gradually and progressively extend willingness to adopt the innovation among system members. The innovation is first introduced to a core group of eager innovators for a trial run. During and after this time the innovation is encouraged and discussed with potential resistors. In addition, those in the system identified as opinion leaders assume the responsibility of influencing adoption within the rest of the system.

   b. Moral Persuasion. Moral persuasion is often used to promote guilt feelings in those who fail to comply with the authority. The innovation takes an aura of "rightness." It becomes something one "ought" to do because it is "right."

3. Reeducative is a style that attempts to induce (strategy) or response (response) to the desired behavior through the use of a didactic internalization of new beliefs or values.[13] The same problem exists with the examples presented below. Most are in terms of strategies, but could be applied to response styles as well.

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[12] This definition was adapted from Kotler (1972, p. 183).

[13] This definition was adapted from Kotler (1972, p. 184).

a. Authentic Feedback. Havelock (1970) describes authentic feedback as a non-evaluative perception and interpretation of system and individual behavior. Basically, it is an attempt to assess the present state of affairs and circumstances of the system.

b. Survey Feedback. This approach as defined by Havelock (1970) is a systematic collection of data from members of the organization. Whether through the use of questionnaire or interview, it is an attempt to reveal heretofore unexposed conflicts and/or problems in the system.

c. Group Observation and Process Analysis. This approach is a collaboration of personnel inside the system to study the interaction and processes of the system. It is intended to facilitate self-criticism, but also to enhance trust and openness of group members. The goal is to have the group reach a consensus of problems or weaknesses in the present system and to agree on several alternative courses of action.

d. Force Field Analysis. According to Havelock (1970), this approach is an attempt to (1) understand group commonalities, and (2) identify informal power structures. The filtering mechanism, or gate keeper, who controls the access of information into the system must be identified. Identification also includes discovering innovators within the system, potential resistors, and possible and present opinion leaders.

e. Consultation. Consultation is the collaboration of the system with an outside expert in diagnosing and evaluating existing problems. He aids the system engaged in (1) defining the problem, (2) retrieving information, (3) deriving implications for action, and (4) planning for implementation. Other approaches outlined above may also be an integral part of consultation.

f. Experimental Demonstrations. Demonstrations have been found to be effective for stimulating awareness and showing utility of an innovation. An attempt should be made to show that the innovation does in fact make a difference. The demonstration, of course, should be in as natural as possible conditions. House (1970) has found, however, that demonstrations, while stimulating awareness, do not necessarily stimulate adoption of the innovation.

g. Human Relations Laboratories. This approach utilizes psychological theory in T-group sessions or other group activities to encourage openness and to help develop interpersonal competence among staff members.

h. Role Playing. Role playing is the acting out of roles of other members in the system to simulate real situations. It may be used to introduce an innovation to a group, or it can be used to train group members for the innovation.

i. Training to Increase Skills. This widely used approach utilizes workshops, internships, or inservice training events not only to teach new skills and attitudes, but also to create new instructional materials or knowledge products. Often these are temporary systems designed to introduce an innovation to system members.

j. Inter-organizational Visits. The rationale behind this approach is the encouragement of innovativeness among staff members by allowing them to visit systems which have successfully implemented the innovation. The experience should give the staff members a chance to see the innovation in action. These visits also tend to increase the cosmopoliteness of staff members.

D. Strategy–Response Relation

The strategy response relation refers to the resultant condition the change advocate and targeted consumer find themselves in after an initiation of a strategy and a response. This relation is viewed as consisting of an acceptance level and state.

1. Acceptance level refers to the continuum of possible behaviors on the part of the targeted consumer from rejection through resistance to acceptance (e.g., compliant, calculative or moral).

2. State refers to the basic relationship that can be defined between the change advocate and the targeted consumer. Some examples of possible states are given below.

   a. Consensus – is a state of general agreement.

   b. Cooperation – is a general state of mutually beneficial actions.

   c. Coalition – refers to a state in which the change advocate and targeted consumer combine forces to accomplish a specific common purpose.

   d. Bargaining – is a state of negotiation for the exchange of goods or services between the change advocate and targeted consumer.

   e. Cooptation – is a state in which one or the other of the two units (e.g., change advocate or targeted consumer) is absorbed into the organizational structure or personal goals and purposes of the other.

   f. Competition – is a state of confrontation or rivalry between the change advocate and targeted consumer which is mediated by a third party.

   g. Conflict – is a state of confrontation or rivalry between the change advocate and targeted consumer in which the mediating factor of the third party is missing and there is no compatibility of actions.

   h. Flight – is a state of withdrawal from the interaction.

V. Impact

The impact dimension, essential to the diffusion process, provides the conceptual structure for a dependent variable in research and accountability assessment in the development process. However, very little structure is seemingly available in the literature on which to build the framework of this dimension.

At present, impact is conceived as a change in any of the dimensions, subdimensions, elements, or relational conditions as a result of a diffusion event. Change is conceived as being either cognitive, affective or behavioral, and is considered to have various levels. These levels are: awareness, interest, trial, adoption, and advocacy (McCaslin and Walton, 1972).

In essence, impact can be measured at any point in time after the interaction condition. The measure of impact is considered a measure of the consequences of the diffusion event. What is measured will be dictated by the intent of the measurer.

As can be noted by the brevity of this analysis, an extensive amount of work needs to be accomplished in this area.

CHAPTER III

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

This conceptual framework was constructed by researchers at the Diffusion Program at The Center for Vocational and Technical Education for the purpose of classifying research findings on dimensions of the diffusion process consistent with the objective of the program: the formulation of rational strategies for diffusion of innovations in vocational and technical education. Data collection procedures included analyses of commissioned papers, ERIC documents, and reports of diffusion research. A group of innovative project directors were interviewed and a committee of consultants reviewed and revised the framework.

Conclusions

The following conclusions relate to the intial draft of the conceptual framework reviewed by the Diffusion Consulting Committee. The second draft of the conceptual framework is proposed as Chapter II in this publication; it is untested. The reader should remember that the framework published in this document represents the first year of a planned three-year activity to develop and refine the framework. The development of major dimensions with logical, internally consistent subdimensions received priority consideration during this developmental year:

1. The major dimensions of the conceptual framework received various levels of endorsement from the Diffusion Consulting Committee members.

    1.1. The greatest degrees of confidence were exhibited in the dimensions of the innovation and the targeted consumer. Despite a recommended name change for the consumer category, the subdimensions were left intact for the most part.

    1.2. Less confidence was exhibited in the strategy dimension; the committee particularly disliked the labels placed on the configuration of subdimensions.

2. New major dimensions were added to the conceptua framework.

    2.1. A dimension of "Change Advocate" was suggested by the committee. The subdimensions were recommended to be parallel to the subdimensions of the consumer dimension.

    2.2. An "Impact" dimension was added by the CVTE Diffusion Program staff after the committee meeting had been concluded.

3. Research findings selected by the CVTE Diffusion Program staff were classified in the same dimension of the initial framework 68 percent of the time by the Diffusion Consulting Committee members.

Implications

1. The degree of confidence a user can place in the framework dimensions varies from dimension to dimension. In particular the user should be cautious in using strategy dimension concepts.

2. The conceptual framework presented to the Diffusion Consulting Committee was not complete as evidenced by their consensus of the need for a new major dimension.

3. Users of the framework cannot classify diffusion research findings in a completely reliable manner even when they are experts in the diffusion process.

Recommendations

1. The conceptual framework is recommended to diffusion researchers and others who have the interest and capacity to further develop the dimensions. The framework may be used as a guide for strategy formulation with the understanding that some of the major dimensions have not been tested; many of the subdimensions need further refinement.

2. CVTE Diffusion Program staff should continue to search for new dimensions or different combinations of major dimensions for the framework. Data from research studies of the diffusion of innovations should be applied to the dimensions and subdimensions of the framework to refine the concepts.

3. Operational definitions should be developed for each dimension and subdimension of the framework. Such definitions should aid users in applying the dimensions uniformly to diffusion research data.

APPENDIX A

The Preliminary Framework Dimensions

DIMENSIONS OF THE FRAMEWORK

I The Innovation

- A. Kind of Innovation
  1. Organizational
  2. Instructional
  3. Methodological
  4. Value Orientation
- B. Perceived Characteristics
  1. Relative Advantage
  2. Compatibility
  3. Complexity
  4. Trialability
  5. Observability
  6. Cost
  7. Time Considerations
  8. Space Requirements
- C. Form of Innovation
  1. Installable System
  2. Instructional Material
  3. Knowledge Product
- D. Magnitude of Innovation

II Target User System

- A. Structure
  1. Span of Control
  2. Complexity
  3. Size
- B. Dynamics of The Social System
  1. Communication Networks
  2. Leadership Roles and Attitudes
  3. Group Relationships
  4. Individual Personal Characteristics
- C. Financial Resources
  1. Availability of Funds
  2. Expenditure of Funds
  3. Financial Resourcefulness
- D. Community Variables
  1. Size
  2. Location or Setting
  3. Socioeconomic Background
  4. Pressure

III Strategies

- A. Rational Approaches
  1. Financial Support
  2. Tactical Reinforcement
  3. System Reorganization
  4. Personnel Selection and Replacement
  5. Progressive Influence
  6. Choice of Communication Media
  7. Linkage
  8. Natural Diffusion
  9. Internal Change Agent
- B. Problem Solving Approaches
  1. Authentic Feedback
  2. Survey Feedback
  3. Group Observation and Process Analysis
  4. Force Field Analysis
  5. Consultation
- C. Reeducative Approaches
  1. Experimental Demonstrations
  2. Human Relations Laboratories
  3. Role Playing
  4. Skill Training
  5. Inter-Organizational Visits
- D. Power Approaches
  1. Fait Accompli
  2. Legal Mandate
  3. Political Sanctions
  4. Economic Sanctions
  5. Moral Persuasion
  6. Confrontation
  7. Negotiation
  8. Fight

APPENDIX B

Consulting Committee Results

CLASSIFICATION OF RESEARCH FINDINGS

INNOVATION	TARGET USER SYSTEM	STRATEGIES	Research Findings
			Blanton, Hull, Russell
	5	2	1. Monomorphic opinion leaders may be inconsistent in influence and in maintaining a high level of performance over time as agents of change; whereas, polymorphic opinion leaders may have a sufficiently broad base of support to withstand shifts of influence.
			Corwin
			Technological innovation appeared to be produced by a combination of:
1		6	2. A dominant outside organization staffed by competent and liberal members.
1	4	2	3. Competent, receptive boundary personnel in the host organization and,
1	4	2	4. Functional interdependence and channels for cooperation to take place.
			Kivlin and Fliegel
5	2		5. Differences in adoption of innovations between two groups of farmers was found as a function of sharp differences in perceived cost, convenience, risk and uncertainty and the desirability of radical change.
			House, Kerins, Steele
	5	2	6. The degree visitors valued a demonstration program had little relationship with later adoption. Situational constraints in the adopting district seemed to be of greater importance than the intrinsic characteristics of the demonstration program or the process of demonstration itself.
			Orlosky and Smith
6		1	7. Changes in methods of instruction are apparently more difficult to make successfully than changes in curriculum or administration.
1	3	3	8. Changes in instruction are most likely to orginate within the education profession.
3	1	3	9. A change that requires the teacher to abandon an existing practice and to displace it with a new practice risks defeat.
5	1	1	10. Curricular changes involving the addition of subjects, or the updating of content are more permanent than changes in the organization and structure of the curriculum.
		7	11. Changes in the curriculum that represent additions or changes in the substance of subjects can be made more secure with support from legislation or organized interest groups.
	1	6	12. Changes that have the support of more than one critical element are more likely to succeed.
1	3	3	13. Changes will be resisted if they require educational personnel to relinquish power or if they cast doubt on educator roles.
	5	2	14. The source of the change appears to have far less to do with its staying power than the support the change receives and the strain it places upon the school personnel.

SMALL GROUP REPORTS

Group A

Members: Kenneth Lindsay, Ferman Moody, Russell Working, Lois Harrington, Randy Wells

Dimensions of the Framework

I. The Innovation
   - A. Form of Innovation
     1. Installable System
        - a. Organizational Change
        - b. Instructional Change
        - c. Methodological Change
     2. Instructional Material
        - a. Organizational Material
        - b. Instructional Change
        - c. Methodological Change
     3. Knowledge Product
        - a. Organizational Change
        - b. Instructional Change
        - c. Methodological Change
   - B. Characteristics
     1. Relative Advantage
     2. Compatability
     3. Complexity
     4. Trailability
     5. Observability
     6. Cost
     7. Time Considerations
     8. Space Requirements
     9. Degree of Change Involved
        - a. Behavioral
        - b. Cognitive
        - c. Affective
     10. Magnitude of Innovation
     11. Facilities

II. User System
   - A. Community Variables
     1. Span of Control
     2. Complexity
     3. Size
     4. Communication Networks
     5. Leadership Roles and Attitudes
     6. Group Relations
     7. Location or Setting
     8. Socioeconomic Background
     9. Pressure
     10. Values
   - B. Formal Organization Variables
     1. Span of Control
     2. Complexity

3. Size
4. Communication Networks
5. Leadership Roles and Attitudes
6. Group Relationships
7. Location or Setting
8. Socioeconomic Background
9. Pressure
10. Values
11. Financial Resources
    a. Availability of Funds
    b. Expenditure of Funds
    c. Financial Resourcefulness

C. Informal/Social Organization Variables
1. Span of Control
2. Complexity
3. Size
4. Communication Networks
5. Leadership Roles and Attitudes
6. Group Relationships
7. Location or Setting
8. Socioeconomic Background
9. Pressure
10. Values

D. User Variables
1. In the Job - objective view
    a. Job Expectations
    b. Power
    c. Resources
2. In the Social System - objective view – Role Relationships
3. Individual Characteristics - objective view
4. His Perceptions of the Innovation
5. His Perceptions of the Advocate
6. His Perceptions of the Organization and His Position In It
7. His Perceptions of the Social System and His Role In It
8. Self-Concept

III. Advocate Sys em
(PARALLELS USER SYSTEM)

IV. Strategies - A strategy is the whole procedure for getting from there to here; a series of linkages making a chain. The following TACTICS can be used in combination to form (be) the links which make that chain:
1. Financial Support
2. Positive or Negative Reinforcement
3. System Reorganization
4. Personnel Selection and Replacement
5. Progressive Influence
6. Choice of Communication Media
7. Establishing Communication Linkages
8. Internal Change Agent
9. External Change Agent (Catalyst, Solution Giver, Process Helper)
10. Authentic Feedback
11. Survey Feedback
12. Group Observation and Process Analysis
13. Force Field Analysis

14. Consultation
15. Experimental Demonstrations
16. Human Relations Laboratories
17. Role Playing (Simulation)
18. Skill Training
19. Inter-Organizational Visits
20. Fait Accompli
21. Legal Mandate
22. Political Sanctions
23. Economic Sanctions
24. Moral Persuasion
25. Confrontation
26. Negotiation
27. Fight
28. Propaganda Techniques
29. Advertising Gimmicks

Group B

Members: William B. Martin, James Jacobs, Mary Bentzen, William Brown

Innovation

I. Tangible
   A. Organizational
      1. Quantity
         a. Extensiveness
         b. Cost
         c. Space Requirements
         d. Time Considerations
      2. Quality
         a. Advantage
         b. Timeliness
         c. Compatibility
         d. Complexity
         e. Trailability
         f. Observability

   B. Curriculum
      1. Quantity
         a. Extensiveness
         b. Cost
         c. Space Requirements
         d. Time Considerations
      2. Quality
         a. Advantage
         b. Timeliness
         c. Compatibility
         d. Complexity
         e. Trailability
         f. Observability

C. Instructional
   1. Quantity
      a. Extensiveness
      b. Cost
      c. Space Requirements
      d. Time Considerations
   2. Quality
      a. Advantage
      b. Timeliness
      c. Compatability
      d. Complexity
      e. Trailability
      f. Observability

II. Intangible
A. Organizational
   1. Quantity
      a. Extensiveness
      b. Cost
      c. Space Requirements
      d. Time Considerations
   2. Quality
      a. Advantage
      b. Timeliness
      c. Compatibility
      d. Complexity
      e. Trailability
      f. Observability

B. Curriculum
   1. Quantity
      a. Extensiveness
      b. Cost
      c. Space Requirements
      d. Time Considerations
   2. Quality
      a. Advantage
      b. Timeliness
      c. Compatibility
      d. Complexity
      e. Trailability
      f. Observability

C. Instructional
   1. Quantity
      a. Extensiveness
      b. Cost
      c. Space Requirements
      d. Time Considerations
   2. Quality
      a. Advantage
      b. Timeliness
      c. Compatibility
      d. Complexity
      e. Trailability
      f. Observability

Consumer

I. Static Characteristics
   A. Entry Point of Innovation
      1. Power of Position
      2. Status of Position
   B. Formal Organizational Structure
   C. Wealth
   D. Size
   E. Complexity
   F. Role Expectations
   G. Community
      1. Size
      2. Location
      3. Socioeconomic Background
II. Dynamic Characteristics
   A. Relation With Advocate
   B. Inter-Organizational Influence
   C. Communication Networks
   D. Role Enactments
   E. Personalities
   F. Organizational Climate
   G. Community Pressure

Advocate

I. Static Characteristics
   A. Innovation Exit Point
      1. Power of Position
      2. Position Status
   B. Formal Organizational Structure
   C. Role Expectations
   D. Wealth
   E. Size
   F. Complexity
   G. Community
      1. Size
      2. Location
      3. Socioeconomic Background
II. Dynamic Characteristics
   A. Relation With Consumer
   B. Inter-Organizational Influence
   C. Communication Networks
   D. Role Enactments
   E. Personalities
   F. Organizational Climate
   G. Community Pressure

Strategies

I. Rational
   A. Financial Support
   B. Tactical Reinforcement
   C. System Reorganization
   D. Personnel Selection and Replacement

E. Progressive Influence
   1. Personality Study of Adopters
   2. Utilize Outside Influence
F. Communication–Linkage
G. Natural Diffusion
H. Internal Change Agent
I. Experimental Demonstration
J. Inter-Organizational Visits

II. Problem Solving
   A. Authentic Feedback – nonevaluative
   B. Survey Feedback – evaluative
   C. Group Observation and Process Analysis
   D. Force Field Analysis
   E. Consultation

III. Reeducative
   A. Human Relations Laboratories
   B. Role Playing
   C. Skill Training

IV. Power
   A. Fait Accompli
   B. Legal Mandate
   C. Sanctions
      1. Political
      2. Economic
   D. Moral Persuasion
   E. Confrontation
   F. Negotiation
   G. Fight

Group C

Members: James Christiansen, Roland J. Krogstad, Bill Hull, Ralph J. Kester

I. The Innovation
   A. Form of the Innovation
      1. Installable System
      2. Instructional Material
      3. Knowledge Product
      4. Process Innovation
   B. Kind of Innovation
      1. Organizational
      2. Instructional
      3. Methodological
      4. Value Orientation
   C. Characteristics
      1. Tangible or Concrete Characteristics
         a. Cost
         b. Time Considerations
         c. Space and Facilities Required
         d. Specification of Support Needed (e.g., evaluation, training, additional staff, etc.)
         e. Magnitude

2. Perceived Characteristics
    a. Relative Advantage
    b. Compatibility
    c. Trialability
    d. Observability
    e. In addition, all of the tangible items could be listed as perceived items
    f. Credibility

D. Consequences of Introduction of Innovations

II. Client or Consumer System

A. Community or Social Context
    1. Size
    2. Location or Setting
    3. Socioeconomic Background
    4. Pressure
    5. Values

B. Formal Organization
    1. Span of Control
    2. Complexity
    3. Size

C. Social Organization
    1. Communication Networks
    2. Leadership Roles and Attitudes
    3. Group Relationships
    4. Individual Personal Characteristics
    5. Role Conflict
    6. Intra-Agency Relationships (Organizational Climate)

D. Financial Resources
    1. Availability and Expenditure of Funds
    2. Financial Resourcefulness

E. Individual User
    1. Role Description
    2. Individual Characteristics

III. Advocate

This is a dimension which was unanimously agreed upon by the conferees as essential to any conceptual framework of the diffusion of innovations. This group agreed that the conceptual elements of the client and advocate system would be parallel. They also agreed that the basic difference lies in the intent of the advocate and the dynamics of the interaction between the advocate and the client. However, time did not permit the group to explore the specific dimensions of difference.

IV. Strategies

In general, this group could not support the four basic subdimension labels as they existed. No censensus was reached as to what the subdimensions are or whether tactics can be classified under certain subdimensions or

strategies. One dimension that was suggested was the desired results of the change. The only other changes suggested were the following:

A. Tactical Reinforcement to Positive/Negative Reinforcement
B. Linkages to Establishing Communication
C. Add Simulation.

APPENDIX C

List of Innovative Project Directors Interviewed

Mrs. Judy Barg
Cincinnati, Ohio

Mr. George Degenhart
Springfield, Ohio

Dr. Lloyd W. Dull
Akron, Ohio

Brian Estrada
Dayton, Ohio

James Fraiser
Dayton, Ohio

Ted Herklotz
Cincinnati, Ohio

Mr. Robert Hughey
Akron, Ohio

Dr. James Jacobs
Cincinnati, Ohio

Mr. James
Akron, Ohio

James Kinne
Cincinnati, Ohio

David Kinsella
Cincinnati, Ohio

John H. Owen
Cincinnati, Ohio

Dr. James Reynolds
Dayton, Ohio

Jama Romar
Toledo, Ohio

James Stickley
Mad River JVSD

James Taylor
Cincinnati, Ohio

Dr. Richard Tirpak
Parma, Ohio

Mr. Topougis
Akron, Ohio

Robert J. Williams
Warren, Ohio

Dr. Charles Willis
Dayton, Ohio

Dr. Russell Working
Toledo, Ohio

Don Ziemke
Toledo, Ohio

Michael Zockle
Warren, Ohio

APPENDIX D

An Outline of a Handbook of Diffusion Techniques

AN OUTLINE OF A HANDBOOK OF DIFFUSION TECHNIQUES

I. Innovation Installation Requirements

   A. Operational specifications in the user system

   B. Conditions and resources needed to meet specifications

II. Assessment of Conditions and Resources which Facilitate or Hinder the Adoption of the Innovation

   A. Inventory of existing key conditions and resources

      1. Personnel available to staff the innovation and qualifications of each

      2. Funds available for trail installation

   B. Use of "force-field analysis" to structure installation strategy decision alternatives

III. Congruency between Requirements for Successful Installation and the Existing Conditions in the Potential Adopting Unit

   For example, it may be desirable to relocate personnel who will staff the innovation into adjacent offices for the purpose of facilitating communication.

IV. Diffusion Tactics

   A. Index to the selection of a diffusion tactic

      1. Tactic for individual adoption

      2. Tactic for group adoption

   B. Description of the diffusion tactic

V. Guidelines for Constructing Strategies

FORMAT FOR TACTIC DESCRIPTION

(One page to be used with each tactic)

Tactic name:

Operational definition:

Conditions where tactic has been used most effectively:

Conditions to avoid in use of the tactic:

Documentation of use of tactic:

(location of previous use, research report citation)

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